DISPLAY APPARATUS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of Korean Patent Application No. 10-2015-0106250, filed on Jul. 28, 2015 in the Korean Intellectual Property Office, the disclosure of which is incorporated herein by reference.

BACKGROUND

[0002] 1. Field

[0003] Apparatuses consistent with exemplary embodiments of the present disclosure relate to a backlight apparatus having a backlight unit for supplying light to a display panel.

[0004] 2. Description of the Related Art

[0005] In general, a display apparatus is equipment for displaying an image on a screen. Examples of the display apparatus include a monitor, a television, etc.

[0006] The display apparatus includes a display panel implemented as a liquid crystal panel to display an image on a screen, and a backlight which supplies light to the display panel.

[0007] The backlight includes an edge type backlight having a light guide plate disposed behind the display panel, and a plurality of light sources arranged along both sides of the light guide plate to emit light.

[0008] Recently, a backlight including, as a light source unit, a substrate and Light Emitting Diodes (LEDs) arranged on the substrate has been developed.

SUMMARY

[0009] One or more exemplary embodiments provide a display apparatus capable of reducing the generation of a bright area and a dark area.

[0010] In accordance with an aspect of an exemplary embodiment, there is provided a display apparatus including: a display panel, a light guide plate disposed behind the display panel, at least one light source disposed to face at least one side surface of the light guide plate, and at least one guide member disposed between the at least on side surface of the light guide plate and the at least one light source, and configured to support at least one of a front part of the at least one side surface of the light guide plate and a back part of the at least one side surface of the light guide plate.

[0011] The at least one light source may include a substrate, and a plurality of light emitting diodes (LEDs) arranged on the substrate to face the at least one side surface of the light guide plate, and the guide member restrictively supports the LEDs and the at least one of the front part of the at least one side surface of the light guide plate and the back part of the at least one side surface of the light guide plate.

[0012] The display apparatus may further include a middle mold configured to support the display panel, and a bottom chassis configured to accommodate the light guide plate therein, wherein the guide member is disposed in one of the middle mold and the bottom chassis.

[0013] The at least one guide member may be integrated into the middle mold and protrude from the middle mold.

[0014] The at least one guide member may be formed by modifying a part of the bottom chassis.

[0015] The at least one guide member may be formed as a separate component relative to the bottom chassis, and matingly engaged in the bottom chassis.

[0016] The at least one guide member may include an installation part extending parallel to the bottom chassis, and a guide part protruding from the installation part and supporting the at least one side surface of the light guide plate.

[0017] The display apparatus may further include a diffusion member disposed between the at least one guide member and the at least one side surface of the light guide plate, and configured to diffuse light.

[0018] The display apparatus may further include a transparent member disposed between the at least one guide member and the diffusion member.

[0019] In accordance with an aspect of another exemplary embodiment, there is provided a display apparatus including a display panel, a light guide plate disposed behind the display panel, a middle mold configured to support edges of the display panel, a bottom chassis configured to accommodate the light guide plate, a plurality of LEDs disposed to face at least one side surface of the light guide plate, a first guide member disposed in the middle mold between the at least one side surface of the light guide plate and the plurality of LEDs, the first guide member may be configured to support a front part of the at least one side surface of the light guide plate, and a second guide member disposed in the bottom chassis between the at least one side surface of the light guide plate and the plurality of LEDs, the second guide member may be configured to support a back part of the at least one side surface of the light guide plate, wherein the first guide member is spaced from the second guide member, and faces the second guide member.

[0020] The display apparatus may further include a diffusion member disposed between the first guide member and the second guide member and the at least one side surface of the light guide plate.

[0021] The display apparatus may further include a transparent member disposed between the first guide member and the second guide member and the diffusion member.

[0022] The second guide member may be formed as a separate component relative to the bottom chassis, and may be matingly engaged in the bottom chassis.

[0023] The plurality of LEDs may be aligned to face an upper side surface and a lower side surface of the light guide plate, and a pair of first guide members and a pair of second guide members may be provided to support the upper side surface and the lower side surface of the light guide plate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] The above and/or other aspects will become apparent and more readily appreciated from the following description of exemplary embodiments, taken in conjunction with the accompanying drawings of which:

[0025] FIG. **1** is a perspective view of a display apparatus according to a first exemplary embodiment;

[0026] FIG. **2** is an exploded perspective view of a display module applied to a display apparatus according to the first exemplary embodiment;

[0027] FIG. **3** is a cross-sectional view of a display module applied to a display apparatus according to the first exemplary embodiment;

[0028] FIG. **4** is a cross-sectional view of a display module applied to a display apparatus according to a second exemplary embodiment;